



AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS INC.

LONDON CANADA CHAPTER #116

<http://LondonCanada.AshraeChapters.org>

Mon Nov 28/2016

BOARD OF GOVERNORS

President

Khalid El-Kadri
ph: 519-681-1977
khalid@somersep.com

Vice President

Phil Cook
226-984-8637
pcook@ehpricesales.com

Treasurer

John Freeman
519-266-3587
jfreeman@gpainc.ca

Secretary

James Scudamore
519-457-1904 (202)
jscudamore@airiabrands.com

COMMITTEE CHAIRS

Technology Transfer

Omar Gharib
John Freeman

Membership Promotion

Rajarajan Deenadayalan
Andrew Crowley

Research Promotion

Jordan Foster

Student Activities

Matt Moore

YEA

Amer Djulbic

Grassroots Gov Activity

James Scudamore

History

Eric Shaw

Newsletter

Tom Pollard

Region 2

Assistant Regional Chair

Ibrahim Simhatl

Topic

How to Implement Demand Control Ventilation and Comply with ASHRAE Standards

GBCI Approved | 1 CE Hour | 0920010384

AIA Approved | 1LU/HSW | BOHANON02

Speaker

ASHRAE DISTINGUISHED LECTURER

**Hoy Bohanon, PE, Member ASHRAE, BEAP,
LEED AP**

Principal

Hoy Bohanon Engineering PLLC

Clemons, N

Meeting - MONDAY NOV 28/2016

5:15 Social 6:15 Dinner 7:15 Presentation

PLEASE USE

PAYPAL

ADVANCED PAYMENT BEFORE MEETING

see chapter web site to register and pay
<http://LondonCanada.AshraeChapters.org>

Meeting Location

**FOUR POINTS BY SHARATON
1150 Wellington Rd. S., London, ON**

President's Message

Welcome everyone to November ASHRAE London Chapter Newsletter. We are excited to host Hoy Bohanon (Distinguished Lecturer) for the November monthly meeting. Mr. Bohanon is the ASHRAE SSPC 62.1 & Building EQ Chair. He will be addressing us on the topic: "How to Implement Demand Control Ventilation and Comply with ASHRAE Standards".

This month theme is "Research Promotion". I'm encouraged by the dedication and enthusiasm of our Research Promotion Chair, Jordan Foster. Jordan Started this year by forming a team that will be focused on achieving our 2017 ASHRAE London Canada Goal of \$13,000. The goal is to spread our research promotion campaign throughout the fiscal year. Jordan will be contacting you at some point, if he hasn't already done so, seeking your ASHRAE RP contribution. Please continue your valuable support of ASHRAE Research Canada, it will be greatly appreciated.

Another Special guest that will be attending our meeting this month is Anthony Jonkov, Region II Research Promotion RVC. Anthony and Jordan will be providing an update & details on our Research Promotion campaign this year.

As a reminder, there will not be a regular monthly meeting in December. We have tentatively scheduled Monday, December 12 @ Palasad (Adelaide St North & Oxford) at 5:30PM as a social gathering to celebrate the Holiday Season. More details will be on the website.

Our January chapter meeting will be a tour to the Western Music Building with presentation then dinner after. Meeting will be on Monday January 23rd due to ASHRAE AHR, which will be the week after.

I look forward to seeing you at the chapter meeting.

Best Regards,
 Khalid El-Kadri
 Chapter President 2016-2017
 ASHRAE London Canada Chapter

Upcoming Meetings

(check chapter web site for latest information)

Mon Dec 12/2016 - Social at Palasada North, 777 Adelaide St. N.

Mon Jan 23/2017 (<<< note date change due to Society Conf)

Mon Feb 27/2017

Mon Mar 27/2017

Thu April 20/2017 - Society Webcast

Integrating Control Technology and Analytics for Optimal Building Performance

Mon June 5/2017 - Golf Tournament

Other Meetings

Jan 28 to Feb 1, 2017 = ASHRAE Winter Conference - Las Vegas, NV

Jan 30 to Feb 1, 2017 = AHR Expo - Las Vegas, NV (ahrexpo.com)

June 24 to 28, 2017 = ASHRAE Annual Conference - Long Beach, CA - 2018 -

Jan 20 to 24, 2018 = ASHRAE Winter Conference - Chicago, IL

Jan 22 to 24, 2018 = AHR Expo - Chicago, IL

June 23-27, 2018 = ASHRAE Annual Conference - Houston, TX

BAYMAR
 SUPPLY LTD.

Progressive HVAC Solutions

Eric Shaw - Sales Manager - London District
 Phone: (519) 964-0022 Inwats: (888) 296-2357
 Fax: (519) 460-7039 E-Mail: eshaw@baymarsupply.com
 on the web: www.baymarsupply.com

RECO

DOUSQUET

MITSUBISHI
 ELECTRIC
 Changes for the Better

VENMAR CEE

DURELL

CONTROL SYSTEMS INC.

Your Partner in Energy Savings...

www.durellcontrols.com

John Xiang, P.Eng., LEED AP BD+C - Systems Manager

johnx@durellcontrols.com

Phone (519) 652-5502

Fax (519) 652-6265

3392 Wonderland Rd. S., Bldg. 9, Units #1 & 2, London, Ontario N6L 1A8

Delta
 CENTRALES

BACnet

HVAC
 ACCESS
 LIGHTING
 Heating & Cooling

IRONROSS Price Sales

Manufacturer Representatives for Industrial & Commercial Air

Handling Products

Members of London, Windsor and Hamilton Chapters

George Clark • Jim Ironside • Kirk McLeod

Mike Popofski • Jon Popofski • Larry Mills (Sarnia)

8-75 Saltsman Drive

Cambridge, ON

N3H 4R7

Phone: 519-653-9470 Fax: 519-653-7853

Email: lryder@ironrosspricesales.com

Website: www.ironrosspricesales.com

changeair
 a systemair company
 Kevin McGachy P. Eng
 Sales Director
 USA / Canada

Changeair
 8 Rouse St.
 Tillsonburg, ON
 Canada N4G 5W8

Tel. +1 519 688 6363
 Cell +1 519 550 3307

kevin.mcachy@systemair.net
www.systemair.net
www.changeair.com

systemair

PALSER
 ENTERPRISES LTD.

Rich Palser

President

rpalscr@palserent.com

www.palserent.com

f PalserEnterprises

@palserent

London, Ontario

tel. 519-471-8382

fax. 519-471-1049

cell. 519-494-2255

Concord, Ontario

tel. 905-738-5200

fax. 905-738-8111

SMITH
 ENERGY

Beyond the Product

PK

ENERVEX

SOFAVE

VERANO

MUELLER

REX

Quanta

International
 Watermark Systems

WILLIAMS

Collinsmaster
 Corporation

Call today for more information on our products
 and training sessions

ONTARIO • Tel.: (519) 744-7295 • smithenergy.com

Topic

How to Implement Demand Control Ventilation and Comply with ASHRAE Standards

GBCI Approved | 1 CE Hour | 0920010384
 AIA Approved | 1LU/HSW | BOHANON02

ASHRAE standards 90.1 and 189P require demand control ventilation in some instances. ASHRAE standard 62.1 allows demand control ventilation but places restrictions on its application. Many existing installations do not comply with the requirements of ASHRAE Standard 62.1. What is required and what strategies and technologies can be used to meet the requirements of the all the standards?

Speaker

Hoy Bohanon, PE, LEED AP, BEAP

President
 Hoy Bohanon Engineering, PLLC
 8236 Arbor Ridge Lane
 Clemmons, NC



Hoy Bohanon, PE, LEED AP, BEAP is principal in Hoy Bohanon Engineering, PLLC, a firm that focuses on improving the performance of existing mission critical buildings. Mr. Bohanon began his engineering career as a research and design engineer, and then gained experience as a project engineer, facilities engineer, facilities manager, indoor air quality research engineer, environmental engineer, and business owner. He has a master's degree in engineering from North Carolina State University, and a bachelor's degree in mechanical engineering from Georgia Institute of Technology.

Mr. Bohanon has written technical papers and articles on indoor air quality, operations, and maintenance and is a frequent presenter at technical society meetings. He is a recipient of the ASHRAE Distinguished Service Award and is chair of ASHRAE Standard 62.1 committee, Ventilation for Acceptable Indoor Air Quality. He also serves on the bEQ committee. He is chair of the US Technical Advisory Group panel 1 (general principles) and panel 4 (indoor air quality) for ISO TC205 Building Environment Design. He is a co-author of The Indoor Air Quality Guide: Best Practices for Design, Construction and Commissioning and Performance Metric Protocols for Commercial Buildings: Best Practices Guide. He also teaches multiple courses for the ASHRAE Learning Institute addressing ASHRAE 62.1 and IAQ. Mr. Bohanon is also a member of the Professional Engineers of North Carolina, US Green Building Council, and I2SL.

2017 ASHRAE TECHNOLOGY AWARD WINNERS

Partial List

FIRST PLACE WINNER

Category III – Health Care Facilities
 New Humber River Hospital
 Kurt Fidelis Jude Monteiro
 Smith + Andersen, Toronto, ON
 Lorie Pella
 Humber River Hospital

FIRST PLACE WINNER

Category IV – Industrial Facilities or Processes
 New STM - Construction du Centre
 de transport de Stinson
 Julien Allard
 Bouthillette Parizeau, Montreal , QC
 Francois Chamberland
 Société de transport de Montreal

HONORABLE MENTION

Category II – Other Institutional Buildings
 New Bibliothèque Ville de Mont-Royal
 Martin Roy
 Martin Roy et Associés, Deux Montagnes, QC
 Ava L. Couch
 Ville de Mont-Royal



www.somersep.com

Daryl Somers, CET

96 Meg Drive, London, Ontario N6E 3T7
 Phone: 519-681-1977 Fax: 519-686-9324 Cell: 519-670-7720
 Email: daryl@somersep.com



Norm Clarke, P. Eng.
 District Manager

Trane Canada
 8 Belleisle Court
 London, On N5V 4L2
 Tel 519 453 3010
 Fax 519 453 3024
 Windsor Tel 519 256 7922
 Sarnia Tel 519 337 0740

Jason Vandenberghe Technical Sales Representative



Sales & Marketing Inc.

4390 Paletta Court Burlington, ON L7L 5R2
 Bus: (905) 631 5815 Fax: (905) 637 8655
 G.T.A. Bus: (647) 288 0980 Cell: (519) 670 8066
 Email: jasonv@aquatech.ws
www.aquatech.ws

Jim Bender, P.Eng., LEED AP®
 Contracting Sales
 jim.bender@hts.com
 C 519.871.0866

HTS London
 320 Neptune Cres.
 London, Ontario N6M 1A1
 T 519.457.6700 Ext. 2601
 F 519.457.8900
 Toll Free 800.341.3110
ontario.htseng.com



1 Royal Gate Boulevard, Unit J
 Vaughan, ON Canada L4L 8Z7

Arun Arora
 Account Executive

Tel: 905-264-6372 Ext. 204
 Fax: 905-264-6432

aarora@belnor.com

www.belnor.com



Paul Glendenning
 Regional Sales Manager
 SPX Cooling Technologies, Inc.

4141 Sladeview Crescent, Unit 19
 Mississauga, Ontario L5L 6T1
 CANADA
 MOB 416 464 0838
 TEL 905 607 6446 x347
 FAX 905 607 6447
paul.glendenning@spx.com
spxcolling.com





CONNECT-A-COLLEAGUE

Informing colleagues about ASHRAE takes less than 1 minute now with Connect-a-Colleague. During #MarchIntoMembership contest you could win a \$500 American Express gift card when your colleagues join ASHRAE through your customized email referral. Connect-a-Colleague simply creates an automated email on your behalf and the more people you invite during the month of March, the more chances you have to win.

ASHRAE member referrals continue to be the top reason new members join. As an ASHRAE member, your referral is a very powerful tool that can benefit your colleagues, your Society, and the HVAC&R industry. Please take a minute to Connect-a-Colleague today.

Get started now: Connect-a-Colleague
ashrae.org/connect

ASHRAE JOB BOARD

Having trouble finding the time to search through all of the available jobs on ASHRAE Job Board? Let ASHRAE do the work for you! Create a personal job alert and new jobs that match your search criteria will be emailed directly to you.

Our Job Alerts will: match jobs to your customized criteria; notify you when potential opportunities become available; allow you to focus on other career-building activities, such as networking

Sign up for job alerts today on ASHRAE Job Board and you will be notified as soon as the jobs you want are posted!

Research

The following have contributed to ASHRAE Research so far this fiscal year. Honor Roll level contributors will be listed in the ASHRAE Journal. All honour roll donors will be listed in the Newsletter and on the website for the duration of the fiscal year. Donate early!

Individual Donors - \$100-\$249 (Honor Roll Level)

Tom Pollard	Ibrahim Semhat
James Scudamore	John Freeman
Norm Clarke	Ben Oliver
Your name here with a personal contribution	

Jordan Foster
 Khalid El-Kadri
 Amer Djulbic

Individual Donors - \$250-\$499 (Major Donor Level - Antique)

Jerry Lavender
 Your name here....

Corporate Donors - Up to \$250

Your company name here....

Corporate Donors - \$250+ (Honor Roll Level)

Your company name here....

As the cold weather nears remember to thank ASHRAE Research for keeping your family warm at night! In fact there's currently 20 research projects underway doing just that. At any given time ASHRAE is supporting about 140 different research projects totaling about \$13 million. These projects not only directly support our industry, but continually push it forward. In Region II alone there are 10 projects with over \$600,000 worth of funding in progress. These projects are directly funded with the donations to ASHRAE Research Canada. Our goal as a chapter this year is to raise \$13,000 and we are currently 9% of the way there. When choosing where to donate this holiday season, keep in mind the one donation that not only benefits your family's wellbeing, conserves the environment and protects out future, but also directly accelerates the industry we rely on to make a living.

A couple of interesting facts that are new options to the Chapter this year... We have created a couple of endowed research funds named below. One is general endowment for the Chapter and the other is specifically for Past Chapter Presidents. When you are considering a donation to ASHRAE Research please consider making a donation to either one of these endowed research funds. Let me know if you have any questions about this or how you do this.

<http://www.ashrae.org/contribute>

Jordan Foster
 Resource Promotion Chair FY2016/2017



IBRAHIM M. SEMHAT P.ENG, LEED® AP BD+C
 Account Executive, Building Systems & Services
 Building Efficiency

Johnson Controls Canada LP
 90 Bessemer Road
 London, ON N6E 1R1 Canada
 Direct 519-691-3138 Mobile 519-852-1470 Fax 519-681-9322
 Ibrahim.Semhat@jci.com www.johnsoncontrols.com



Water Treatment for Boilers, Cooling Towers and Waste Water



BRIAN JUTZI, CWT
 brianjutzi@jutzi.com
 cell: (519) 276-7970



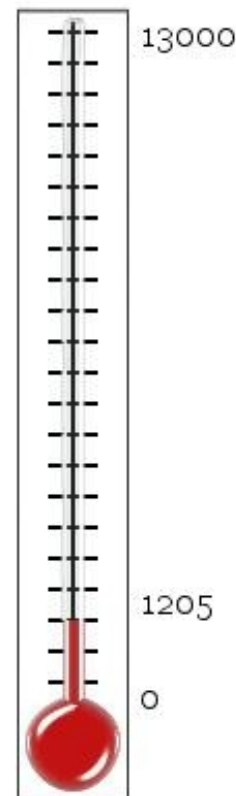
279 Lorne Avenue, Box 280, Stratford, Ontario, Canada N5A 6T1
 PH: (519) 271-9831 1-800-265-8593 FAX: (519) 271-1246

www.jutzi.com

ENERGY • WATER • SERVICE

Business Card Ads

Place your business card HERE
 contact:
 Newsletter Editor
 Tom Pollard
 <tpollard@execulink.com>
 or
 Chapter Treasurer
 John Freeman
 <jfreeman@gpainc.ca>



ASHRAE Commends Montreal Protocol Amendment to Phase Down HFCs

ATLANTA – ASHRAE commends the governments involved in the adoption of the HFC amendment to the Montreal Protocol, which will result in a global phase down of production and consumption of hydrofluorocarbons (HFCs). The agreement was signed earlier this week. The move comes as ASHRAE and leading U.S. government agencies, built environment associations and companies launch a multi-million dollar research program that will establish a more robust fact base about the properties and the use of flammable refrigerants.

The research is part of a \$5.8 million program funded by ASHRAE, the Air-Conditioning, Heating, and Refrigeration Institute (AHRI), the U.S. Department of Energy (DOE), the Association of Home Appliance Manufacturers (AHAM), the California Air Resources Board (CARB), and Johnson Controls. This program is part of an ongoing global effort to phase down the use of high global warming potential (GWP) refrigerants and identify appropriate climate-friendly alternatives.

“Flammable refrigerants hold great promise for reducing the use of HFCs in refrigerants and thereby lowering the environmental impact of air-conditioning and refrigeration systems,” ASHRAE President Tim Wentz, said. “ASHRAE applauds the Kigali Amendment and is pleased to be a partner in cutting edge research effort to better understand how to safely deploy flammable refrigerants.”

The agreement calls for reduction of HFCs equivalent to 80b metric tons of carbon dioxide through 2047 and will thereby avoid almost a half degree C of global warming. Several ASHRAE members were among those attending the Protocol meetings. Among them were ASHRAE Presidential Member Jim Wolf and ASHRAE Director-at-Large Bill McQuade.

“The update of product safety standards and building codes to include A2L refrigerants is essential to the success of this agreement,” McQuade said. “The interest in our A2L research program by the parties was very high. In fact, several indicated to me interest in becoming a partner and funding additional research in the future.”

**2017
Winter
Conference**
Jan. 28 – Feb. 1
Las Vegas, NV



**AHR
Expo**
Jan. 30 – Feb. 1
Las Vegas, NV



[Register Now for the 2017 ASHRAE Winter Conference and AHR Expo](#)

The largest gathering of HVAC&R professionals in the world is taking place January 28 – February 1 in Las Vegas. Join us at Caesars Palace and the Las Vegas Convention Center to learn the latest in technology, earn PDH's, and help guide the industry by taking part in a standards or technical committee meeting.

8 Conference Tracks | 2000+ AHR Exhibitors | 20+ ASHRAE Learning Institute Courses | Social Events | Tours | 600+ Technical Meetings

ASHRAExCHANGE

Want to stay updated with ASHRAE instantly? Log onto to ASHRAExCHANGE to ask questions, discuss industry news and connect with other engineers!

Online Thermal Comfort Compliance Tool Included in New ASHRAE User's Manual

ATLANTA – A new User's Manual for ASHRAE's thermal comfort standard provides an overview for new users while also including more detailed information for those more familiar with its requirements. The User's Manual, based on ANSI/ASHRAE Standard 55-2013, Thermal Environmental Conditions for Human Occupancy, provides detailed information on the requirements of the standard. It includes tables, illustrations and examples to aid users in the design, commissioning, and measuring and rating of thermal comfort in buildings. The manual includes a free online thermal comfort tool that can be used as the official tool for showing compliance with Standard 55-2013 along with all of the published addenda. This online tool is available only to those who purchase the User's Manual and can be accessed from any internet connected device. The web-based CBE/ASHRAE Thermal Comfort Tool was developed by the Center for the Built Environment at the University of California Berkeley.

"For a new user of Standard 55, the manual provides a great overview of what it takes to make a space thermally comfortable for the occupants," Abhijeet Pande, chair of the Standard 55 committee, said. "This includes descriptions of how to account for the environmental, occupant and local factors that impact comfort. For an experienced user of Standard 55, the manual provides insights into requirements that are sometimes hard to understand in the standard. The User's Manual provides examples of calculations that will help even the most experienced user who may struggle with figuring out where and how to get an input needed for thermal comfort calculations."

The manual also includes:

- Information on the intent and application of Standard 55
- Guidance on applying the principles of acceptable thermal comfort and effective thermal control
- Useful reference material to assist designers, owners and users in efficiently completing a successful and compliant design
- Guidance to building operation and maintenance personnel
- Descriptions of compliance options and tools

The cost of the ANSI/ASHRAE Standard 55 User's Manual is \$99, ASHRAE members (\$115, non-members). To order, visit www.ashrae.org/bookstore or contact ASHRAE Customer Contact Center at 1-800-527-4723 (United States and Canada) or 404-636-8400 (worldwide) or fax 678-539-2129.

ASHRAE/IES Publish 2016 Energy Efficiency Standard

ATLANTA – Numerous energy savings measures resulting from industry input are contained in the newly published energy efficiency standard from ASHRAE and IES. ANSI/ASHRAE/IES Standard 90.1-2016, Energy Efficiency Standard for Buildings Except Low-Rise Residential Buildings, contains 125 addenda published since the 2013 standard. The 2013 standard currently serves as the commercial building reference standard for state building energy codes. This 2016 version is the 10th edition published since the original standard was first published in 1975 during the energy crisis of the United States.

The most significant mechanical and electrical technical changes included are as follows:

Lighting:

- Modified control requirements that make the application of advanced lighting controls easier for increased energy savings
- Modification of exterior and interior lighting power densities that reflect the efficiency gains from LED technology in specific applications where they are proven to be effective
- Added minimum requirements for lighting in dwelling units to set limits on light source efficacy
- Added additional control for lighting in parking areas based on occupancy to reduce energy use

Mechanical:

- Chilled water plant metering – For the first time, the standard is requiring large electric driven chilled water plants to be monitored for electric energy use and efficiency.
- DOAS requirements – Dedicated outdoor air systems were introduced over 25 years ago but there were no rating or efficiency requirements with which to comply. For the first time, this product class does have both efficiency and rating requirements with which they have to comply.
- Elevator efficiency –Introduces requirements for designs to include both usage category and efficiency class. While a minimum threshold is not listed, it is the first step toward including minimum elevator efficiency requirement in a future standard. The standard referenced is an ISO standard since this the current industry standard for efficiency.
- Economizer diagnostics – The standard is implementing requirements that air cooled DX cooling unit with economizers have a monitoring system to determine that the air economizer is properly working.

The cost of is \$119, ASHRAE members (\$140, non-members). To order, visit www.ashrae.org/bookstore or contact ASHRAE Customer Contact Center at 1-800-527-4723 (United States and Canada) or 404-636-8400 (worldwide) or fax 678-539-2129.

Changes to Commissioning Requires Proposed for Green Building Standard

ATLANTA – Changes to the commissioning requirements in Standard 189.1 that would increase its ability to support achieving high performance green buildings are open for public input.

Published by ASHRAE, the Illuminating Engineering Society (IES), the U.S. Green Building Council (USGBC) and the International Code Council (ICC), ASHRAE/IES/USGBC/ICC Standard 189.1, Standard for the Design of High Performance Green Buildings, contains minimum requirements for the siting, design and construction of high performance green buildings in support of reducing building energy use, resource consumption and other environmental impacts, and maintaining acceptable indoor environments.

Eleven addenda to Standard 189.1 currently are out for public review. For more information or to submit a comment, visit www.ashrae.org/publicreviews

Proposed addendum aq updates the standard's requirements for building systems commissioning. Committee chair Andrew Persily said the requirements are being changed for several reasons.

"We want to update the standard to reflect experience gained in applying the existing requirements as well to keep current with trends and terminology in the evolving commissioning industry," he said.

In addition to addendum aq, addenda ap and as are open for review until Dec. 19.

Addendum ap updates the normative references in Section 11 and the informative references in Appendix G, primarily to reflect the latest publication dates in referenced standards.

Addendum as updates the acoustical requirements based on new technical requirements as well as review of the International Green Construction Code, Acoustical Society of America documents, Facilities Guideline Institute healthcare guide and the U.S. Green Building Council's LEED. The changes include a requirement that room background noise levels be controlled by calculation instead of by prescribing several interrelated features, allowance of either a prescriptive or testing approach for building envelope and interior assemblies, requirements for mechanical equipment and noise to adjacent properties by equipment and addition of a new section on acoustical testing.

In addition, seven addenda are open for public comment until Dec. 4, 2016. They are:

- Addendum ae addresses plans for the treatment of waste materials originating from the development of a building project site.

- Addendum ag creates a new definition for plants that are suitable for inclusion in this standard.

- Addendum ah revises the lighting power density (LPD) requirements for exterior parking areas.

- Addendum ai adds requirements for testing, installation and commissioning of air curtains when they are installed in building entrances.

- Addendum aj revises the bi-level motion control requirements to better align with addendum as to ASHRAE/IES 90.1-2013, Energy Standard for Buildings Except Low-Rise Residential Buildings.

- Addendum al modifies the provisions for electric vehicle charging infrastructure.

- Addendum ak updates the standard's life cycle assessment of buildings.

- Addendum am modifies the roof heat island mitigation section that was changed via addendum i.

Revised Residential Energy Standard Open for Industry Input

ATLANTA – Recognizing the amount of energy used by the residential building sector, ASHRAE and IES are revising their residential energy standard with a goal of making it 50 percent more efficient than the 2006 International Energy Conservation Code, which serves as the industry benchmark.

The residential sector consumes a fifth of all the primary energy used by the United States (21 percent) and more than half (54 percent) of all energy used by buildings. Similar trends are also observed in other parts of the world. For example, in Europe, residential buildings accounted for 75 percent of the total building stock and were responsible for 26.2 percent of the total European Union final energy consumption in 2012.

ASHRAE/IES Standard 90.2-2007R, Energy Efficient Design of Low-Rise Residential Buildings, is open for public comment from Nov. 4 until Dec. 19, 2016. For more information or to submit comments, visit www.ashrae.org/publicreviews.

Theresa Weston, chair of the Standard 90.2 committee, said the revision of the standard, last published in 2007, represents a new approach in residential building energy performance.

"This new 90.2 seeks to deliver residential building energy performance that is at least 50 percent more efficient than the energy efficiency defined by the 2006 International Energy Conservation Code," she said. "Key to accomplishing this objective is delivery of an accurate, flexible performance-based tool to enable user creativity in meeting the performance objectives. The new standard contains detailed rules governing the energy modeling and analyses needed to determine compliance with the performance objectives."

The standard provides a mechanism by which any residential building design can be easily evaluated against these performance objectives. By establishing a clearly-defined rules set for energy performance modeling, users can easily assess various designs, material options, orientations and other variables to evaluate predicted energy performance, according to Weston. This analytical flexibility also provides users with a tool for helping to establish program targets and ensure program compliance.

The ruleset is based on ANSI/ICC/ RESNET 301 with specific exceptions and adjustments for building size. ANSI/ICC/RESNET 301 is available online at <http://www.resnet.us/blog/ansiresneticc-standard-301-2014-january-15-2016/>

Another key difference in the structure of this standard is that it allows users to develop multiple prescriptions – recipes of construction, systems and equipment – that will deliver the targeted performance. As such, users such as states, utility programs and product manufacturers may seek to build prescriptive "solutions" to assist builders with locally focused, performance based compliant options.

Weston noted that an array of new building envelope, HVAC, lighting and equipment technologies exist to enable achieving even greater levels of residential energy efficiency. Since this standard is performance based and focuses on whole building energy performance, all of these new technologies can be evaluated to meet the performance target.

Additional key features in this draft standard include:

Title, Purpose and Scope – The standard now covers manufactured housing, which was not included in the 2007 version. It also addresses renewable and non renewable forms of energy.

Building envelope – The standard recognizes that long lived building envelope decisions play a critical role in achieving the targeted building performance. Certified performance of insulation, fenestration and envelope air sealing are prioritized. Testing and verifying the envelope air leakage is mandatory. The standard attempts to address several problems in existing residential performance techniques. One major difference is adjustments in building modeling techniques to address the energy use implications of building size.

Mechanical systems – The standard recognizes the importance of HVAC and water heating system performance as essential to achieving the overall building performance targets. Proper sizing and verification of duct system performance, as well as having all ductwork within conditioned space are fundamental to these objectives. Similarly, plumbing system design, insulation levels and controls are prioritized and are fundamentally new. Requirements for HVAC system design, installation, commissioning and verification are integral to 90.2.

Lighting systems – The standard builds on the many recent cost effective and long lived advances in lighting technology – from lamps to control systems – to help deliver even greater levels of lighting energy savings than current minimum code. Key improvements include revised modeling rules for quantifying residential lighting energy, credits for the use of vacancy sensors, dimmers and other control devices and revised lighting allowances for interior, exterior, garage and other residential lighting.

Onsite power systems – The standard recognizes the important role of renewable energy and onsite power systems to help achieve the building performance targets. It emphasizes load minimization and HVAC performance strategies first so that any onsite power systems used can have maximum impact toward the overall building performance goals.

ASHRAE RESEARCH: HELPING YOU SURVIVE WINTER



Research Projects Keeping You Warm This Winter

- 1196-RP - Develop Software to Calculate the Application Seasonal Efficiency of Commercial Space Heating Boiler Systems Based on ASHRAE Standard 155P
- 1267-RP - Development of an ASHRAE Design Manual for District Heating and Cooling Systems
- 1322-RP - Productivity and Perception Based Evaluation of Indoor Noise
- 1385-RP - Development of Design Tools for Surface Water Heat Pump Systems (SWHP)
- 1458-RP - Modeling Person-to-Person Contaminant Transport in a Mechanical Ventilation Space
- 1478-RP - Measuring Air-tightness of Mid- and High-rise Non-residential Buildings
- 1504-RP - Extension of the Clothing Insulation Database for Standard 55 and ISO 7730 to Provide data for Non-Western Clothing Ensembles
- 1544-RP - Establishing Benchmark Levels and Patterns of Commercial Building Hot Water Use
- 1550-RP - Thermal Performance of Insulating Coatings on Piping and Ductwork
- 1564-RP - Measurement of Oil Retention in the Microchannel Heat Exchanger
- 1613-RP - Update Climatic Design Data in Chapter 14 of the 2013 Handbook of Fundamentals
- 1624-RP - Effective Energy-Efficient School Classroom Ventilation for Temperate Zones
- 1646-RP - Measurements of Thermal Conductivity of Pipe Insulations at Below Ambient Temperatures and in Wet Condensing Conditions with Moisture Ingress
- 1674-RP - Research to Support the Revision to Ground Source Heat Pump: Design of Geothermal Systems for Commercial and Institutional Buildings (ASHRAE 1997)
- 1699-RP - Update Climatic Design Data in Chapter 14 of the 2017 Handbook of Fundamentals
- GIA 13-14 - Air-Side Economizer Low-Limits Effect on Energy and Thermal Comfort
- GIA 13-14 - Assessing the Performance of Buildings Due to Extreme Weather and Climate Change
- GIA 14-15 - Development and evaluation of novel membrane liquid desiccant air conditioning systems for hot-humid and cold-dry climates
- GIA 14-15 - Integrating thermal energy storage into hybrid solar assisted heat pump systems for residential houses in cold climate
- GIA 14-15 - Numerical and experimental investigation of control schemes for small scale ammonia water absorption heat pumps

For more information on these projects, visit:

<https://www.ashrae.org/standards-research-technology/research#researchproject>

